

REMARKS

Claims 167-183, 185 and 187-206 are pending. Claims 1 to 166 were previously cancelled. Claims 184, 186 and 189 are cancelled herein. Claims 168, 187, 191-192, 198-199, and 202-203 are as previously presented. Claims 204-206 are new. Applicants acknowledge with thanks the Examiner's assistance in drafting claims that remedy the Examiner's prior rejections. The indication by the Examiner that the nucleotide sequences of SEQ ID NO: 1 and 4 and nucleotide sequences encoding SEQ ID NO: 2 and 5 are deemed free of the prior art is also acknowledged with thanks.

Support for the amendments to the claims is found throughout the specification. Specifically, support for claims 167 and 169 can be found at least at p. 11, lines 12-15, p. 14, lines 16-21; pp. 25-26 and p. 27 first full paragraph. Support for claims 170-171 can be found at least at p. 13, lines 21-36; p. 14, lines 7-9. Support for claim 172 can be found at least at p. 11, lines 7-12. Support for claims 173-175 can be found at least at p. 14, lines 16-21; p. 22, lines 23-33 and p. 26, line 30 to p. 27, line 2. Support for claims 176-178 can be found at least at p. 13, lines 21-36; p. 14, lines 7-9 and pp. 22-24. Support for claims 179-180 can be found at least at lines p. 14, lines 16-21; p. 20, lines 9-26 and pp. 22-24. Support for claims 181-182 can be found at least at p. 20, lines 9-26; pp. 22-24. Support for claims 183, 185, 188, 190 can be found at least at p. 11, lines 12-15; p. 14, lines 7-9 and 16-29; p. 20, lines 20-26 and pp. 22-24. Support for claims 193-194 can be found at least at p. 14 lines 16-21 and pp. 22-24. Support for claim 195 can be found at least at p. 11 lines 12-15 and pp. 22-24. Support for claim 196 can be found at least at p. 11, lines 6-7 and pp. 22-24. Support for claim 197 can be found at least at p. 11, lines 6-19 and pp. 22-24. Support for claim 200 can be found at least at p. 13, lines 34-36; p. 14, lines 7-9 and pp. 22-24. Support for claim 201 can be found at least at p. 11, lines 7-17 and pp. 22-24. Support for claim 204 can be found at least at p. 14, lines 16-21 and pp. 22-24. Support for claims 205-206 can be found at least at pp. 20-24.

Applicants thank the Examiner for the courtesies extended in several telephonic interviews regarding the Office Action. Examiner's clarification regarding the rejection of SEQ ID NO: 5 under § 112 is appreciated. It is Applicants' understanding that the references to the polynucleotide refer to SEQ ID NO: 4 and not SEQ ID NO: 5.

Claim Objections

Claims 168, 185, 194, 196 and 197 stand objected to as being dependent upon a rejected base claim. The indication by the Examiner that the claims would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims is acknowledged with thanks. However, the base claims on which these claims depend have been amended to be in allowable form. Thus, claims 167, 185, 194 and 197 are as previously presented, and claim 196 has been amended only for clarity. Because each claim now depends on an allowable base claim, Applicants request that the Examiner withdraw these objections.

Written Description

Claims 167, 169, 170-172, 173-175, 176-178, 179-180, 181-184, 186-193, 195, 198-199 and 200-203 stand rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement under 35 U.S.C. 112. The Examiner stated that the rejection would be obviated for claims 167, 169, 173-175, 179-180, 186, 188, 193, 195 and 198-199 if an amendment was made to insert functional language. Claims 167, 169, 173-175, 179-180, 183, 186, 188, 193 have been amended, following the Examiner's suggestions, to obviate the rejections. Claims 187, 191-192, and 198-199, which depend on newly amended claims 183 or 193, are as previously presented. Claims 204-206 are new, and follow the Examiner's suggestions. No new matter has been added by any of the above amendments. Therefore, Applicants respectfully request that the rejection be withdrawn.

The Examiner rejected claims 170-172, 176-178, 181-182, 189-190 and 200-203 for failing to meet the written description requirement, because (1) SEQ ID NO: 5 does not possess an open reading frame encoding a full-length polypeptide, and therefore reads on fusion genes, cDNAs, and constructs having SEQ ID NO: 5 in common, and in addition, since SEQ ID NO: 5 appears to be a partial gene, it is unclear if it encodes a functional polypeptide; (2) the specification only describes the UDP-glucose binding domain of SEQ ID NO: 1 encoding SEQ ID NO: 2 that is capable of cellulose synthase activity, and therefore a representative number of polynucleotides encoding a polypeptide consisting essentially a UDP-glucose binding domain and having cellulose synthase activity has not been described; (3) the state of the prior art is that UDP-glucose binding domains are non-functional when isolated from other portions of the protein, and therefore, since Applicants have not described

the polynucleotides as broadly claimed, vectors, plants, plant cells/seeds comprising the polynucleotide and methods that employ the polynucleotide are similarly not described. As discussed above, it is Applicants' understanding that the references to the polynucleotide refer to SEQ ID NO: 4 and not SEQ ID NO: 5.

An applicant's specification must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession of the invention. *Vas-Cath, Inc. v. Mahurkar*, 935 F.2d 1555, 1563-64, 19 USPQ2d 1111, 1117 (Fed. Cir. 1991). Claims 170-172, 176, 181, 190 and 200-201 have been amended to claim polynucleotides which encode a polypeptide consisting essentially of SEQ ID NO: 5, as well as polypeptides consisting essentially of SEQ ID NO: 5. Applicants respectfully submit that these amendments obviate the above rejections and request that the rejections be withdrawn.

In addition, on page 11, lines 12-15 the application describes the UDP-glucose binding domain of SEQ ID NO: 1 and states that the corresponding nucleotides of SEQ ID NO: 4 are within the scope of the invention. One of ordinary skill in the art would easily be able to discern the corresponding nucleotides of SEQ ID NO: 4, either by eye or by using one of the computer programs for sequence comparison commonly used in the art. It would be clear to a person of ordinary skill in the art that Applicants were in possession of the invention at the time of filing. Because of the limiting amendment to these claims described above, Applicants respectfully assert that the written description requirement is met and that the Examiner withdraw all objections to these claims.

New Matter

Claims 172 and 201 stand rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor, at the time the application was filed, had possession of the claimed invention. The Examiner stated that there is no support in the specification or in the claims as originally filed for the limitation "nucleotides 2 to 3244 of SEQ ID NO: 4," and that page 11, lines 7-9 of the specification is not sufficient to provide support for the limitation.

Examiner has requested that Applicants either point to support for the limitation in the originally filed specification or to delete the new matter. Applicants point not only to support on page 11, lines 7-9, but also to page 11, lines 10-17 and respectfully traverse the rejection.

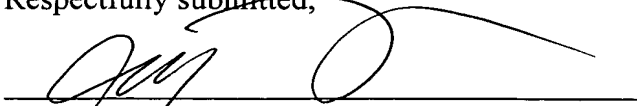
Language added to the claims by amendment or introduced in newly presented claims need have previously appeared in the specification only implicitly, and the support for the newly added terms need not be verbatim or *in haec verba*. See *In re Smythe*, 481 F.2d 910, 915 (CCPA 1973).

The specification teaches at page 11, lines 7-9 that SEQ ID NO: 5 is the translated polypeptide of SEQ ID NO: 4. One of ordinary skill in the art would easily be able to discern that the nucleotides 2 to 3244 of SEQ ID No: 4 correspond to the translated polypeptide of SEQ ID NO: 5. This could be done by eye with simple knowledge of the genetic code or by using one of the many computer programs available and commonly used in the art for sequence comparisons. The specification also teaches at page 11, lines 10-17 that the scope of the invention relates to fragments of the polynucleotides encoding cellulose synthase of the invention, which fragments encode at least one transmembrane domain and/or a UDP-glucose domain. Because nucleotides from position 2 to position 3244 of SEQ ID NO: 4 encode such a fragment of SEQ ID NO: 5, which one of skill in the art would be easily able to discern by an alignment comparison of SEQ ID NO: 4 to nucleotides 660-2250 of SEQ ID NO: 1 (disclosed as the UDP-glucose binding domain at page 11, lines 12-15) and using any of a number of transmembrane domain predictor computer programs commonly used in the art. Applicants therefore assert that this fragment does fall within the scope of the original disclosure and that Applicant was in possession of the invention at the time the application was filed.

Applicants respectfully assert that the limitation "nucleotides 2 to 3244 of SEQ ID NO: 4" was at the very least implicitly present in the specification and obvious to one of ordinary skill in the art and therefore respectfully requests the withdrawal of this rejection and allowance of the claims.

In view of the foregoing it is believed that this application is now in condition for allowance. Should any issues remain, the Examiner is invited to contact the undersigned at the phone number below.

Respectfully submitted,



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